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Review

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not have furnished the answer to the problem of how to get one's collections past—as one returned service man put it—“a rather stupid unit censor,” or how to recover them after once having been separated from them in moving about.—GORDON F. FERRIS, *Stanford University, Calif.*

Brazil, Orchid of the Tropics (cover title; Brazil on title page.) By MULFORD AND RACINE FOSTER. Lancaster, Pa.; Jaques Cattell Press, 1945: i-xi, 1-314, 175 figs., 4 col. pls. \$3.50.—This narrative of the Brazilian experiences of two of the most enthusiastic and energetic amateur botanists in America will surely breed wanderlust in the mind of the naturalists who read it. The Fosters have made the bromeliads a source of exciting adventure and of deep personal satisfaction, and these qualities are delightfully portrayed in this diary of their search for epiphytes in the forests of southern Brazil. The abundance of illustration by photograph and drawing lends spice to the reading, although many of the photographs are inferior and so roughly retouched as to mar seriously the otherwise good appearance of the book. Although there will be few who will share with the Fosters their extreme enthusiasm for bromeliads, their descriptions of jungle botanizing and of their experiences with the people and customs of Brazil will be enjoyed by tropical botanists and armchair travelers alike.—E. Y. DAWSON, *Allan Hancock Foundation, University of Southern California, Los Angeles 7, Calif.*

Louis Agassiz As a Teacher. Illustrative Extracts on His Method of Instruction with an Introductory Note by LANE COOPER. Ithaca, N. Y.: Comstock Publishing Co., 1945: i-xi, 1-90, frontisp. \$1.50.—Originally issued in 1917, this fascinating booklet is now embellished by a better, more inspiring portrait of the master teacher and by the compiler's own rendering of a passage from the *Phaedrus* of Plato, introduced with other material to show how old and

fundamental are the pedagogic methods that Agassiz introduced to America. These methods are very interestingly and effectively presented, not only by quotations from the grand naturalists's own lectures and writings, but also by articles about Agassiz and his teaching that were prepared and published by his students and by other admirers. In this edition there is included A Sketch of the Life and Work of Agassiz, by Helen Ann Warren, together with a list that she prepared of his special students, many of whom became leaders in natural history and in turn the teachers of the next generation of naturalists. A large proportion of present-day biologists may proudly count Agassiz in their intellectual ancestry.

Professor Cooper stresses his conviction that Agassiz's method of instruction—leading a prospective naturalist first into unaided personal observation and interpretation—applies equally well to other branches of real learning. Particularly from the standpoint of the future scientist the information—cramped sessions that currently pass as college courses seem to have become changed too greatly from the type that Agassiz introduced. Would it not still be wise to sacrifice some time in the preliminary conditioning of such students to the scientific method? Training at first would be slowed, but in the end would not the student go farther in intellectual satisfaction and in the advancement of science?

Willis Rodney Whitney Pioneer of Industrial Research. By JOHN T. BRODERICK. With Foreword by Dr. Karl T. Compton. Albany, N. Y.: Fort Orange Press, 1945: 1-324, 7 pls. \$3.00.—Compton writes that “few scientists have so impressed their ideals upon their contemporaries and followers as has Willis R. Whitney. He has largely set the pattern and philosophy of the modern industrial research laboratories, one of the unique achievements of this century.” The greater part of the book deals of course with Whitney the chemist, the physicist, the industrial researcher. One

fascinating chapter, however, is devoted to Whitney the amateur naturalist. Throughout his tremendously active life he has turned to natural history as a refreshing hobby, for his brain is too active and too inquisitive to find relief in ordinary adult play. Endowed as he himself says with a roving, receptive mind he long ago undertook and in spare time has ever since followed a study of land turtles, with particular and penetrating emphasis on their life cycle and migrations. From these studies as well as from observation on guppies in a fish bowl, on galls in goldenrod stems and on a variety of other animals he has developed a thoughtful philosophy of animal and human interrelations that biologists in general will profit from reading. Whitney makes no pretense of being a biologist, but he sees uncommonly well and understands what he sees. It is clear that had he followed natural history as his main line of research he would have succeeded as brilliantly as he has in applied physical science.

The Relation of Non-heritable Food Habits to Evolution. By JOHN E. CUSHING, JR. *Condor*, 46, 1944: 265-271.—It is held probable "that traditional food habits may be sufficiently specific and stable to influence selection pressure and thus the evolution of many species of birds and other animals." This view that psychological responses may be due more to training than to genes, in animals that learn by teaching, may be welcomed by those who deny that human races differ in mental qualities. It seems possible, however, that genes play a somewhat more important role than Cushing thinks in determining

how, when, and what a young bird learns from its parents. He recognizes, however, the interplay of heredity and training, and his evolutionary philosophy seems to be essentially sound.

Phylogeny of Nearctic Sciuridae. By MONROE D. BRYANT. *Am. Midland Nat.*, 33, 1945: 257-390, pls. 1-8, figs. 1-48.—The phylogenetic relationships of the Nearctic squirrels and relatives are discussed on the basis of an extensive and detailed study of external features, osteology, myology and paleontology. The external characters are regarded as having been particularly subjected to the indirect molding influence of the environment and as having doubtful significance for supraspecific groups. Color patterns, however, are indicated as distinctive of two genera and one subgenus. The phylogenetically significant skull characters are principally associated with the masticatory mechanism and with the differential development of the brain parts. The vertebral column is conservative. The characters of the appendicular skeleton that define three main groups are correlated with habits. The baculum (os penis) is of distinctive type in four groups. The myology is described in greatest detail but without any summary or phylogenetic discussion. The fossil genera and species are reviewed. On various lines of evidence the characters of the sciurid prototype are hypothesized, as a basis for outlines of the phylogeny and of the classification. An outstanding defect in the presentation is the failure to bring together in one place the generalizations that are of concern to the student of evolution.